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(54) **METHOD AND APPARATUS FOR INSURANCE RISK MANAGEMENT**

(76) Inventors: **Lance Harrison**, 6090 N. Northcott Ave., Chicago, IL (US) 60631; **Andrew Grant Harrison**, 6090 N. Northcott Ave., Chicago, IL (US) 60631

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1278 days.

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(51) **Int. Cl.**
G06Q 40/00 (2006.01)

(52) **U.S. Cl.** **705/4**

(58) **Field of Classification Search** .... None
See application file for complete search history.

(56) **References Cited**

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Primary Examiner—Gerald J. O'Connor
Assistant Examiner—Sheetal R Rangrej
(74) *Attorney, Agent, or Firm*—Marshall, Gerstein & Borun LLP

(57) **ABSTRACT**

A methodology for calculating insurance premium comprising receiving a set of insurance information from a user including a revenue of the organization, a self insured retention (SIR) of the organization, and a loss limit acceptable to the organization to determine a standard premium for the organization. Once the standard premium of the organization is determined, the methodology illustrates how to determine a regular premium based on the standard premium and the SIR of the organization. Finally, using the described methodology one can determine an excess premium based on the loss limit acceptable to the organization, the regular premium and the self insured retention of the organization. The method provides a powerful tool to manage various risks of an organization and at the same time control various factors determining the insurance premium of the organization.

16 Claims, 14 Drawing Sheets

		12	14
		Minor Insured	Major Insured
16 →	Insured's Revenue	$900,000,000	$3,600,000,000
17 →	Square Root	$30,000	$60,000
18 →	Multiple	20	20
19 →	Standard Premium	$600,000	$1,200,000

		12	14
		Minor Insured	Major Insured
16	Insured's Revenue	$900,000,000	$3,600,000,000
17	Square Root	$30,000	$60,000
18	Multiple	20	20
19	Standard Premium	$600,000	$1,200,000

FIG. 1

		32	34	36	38	40
		Minor 1	Minor 2	Minor 3	Major 1	Major 2
42	Insured's Revenue	$900,000,000	$900,000,000	$900,000,000	$3,600,000,000	$3,600,000,000
44	Insured's SIR	$250,000	$500,000	$1,000,000	$2,500,000	$5,000,000
46	Log(SIR/a2)	-0.6021	-0.301	0	0.3979	0.699
48	Loss Limit (Policy Limit)	$25,000,000	$25,000,000	$25,000,000	$25,000,000	$25,000,000
50	Log (Loss Limit)	1.3979	1.3979	1.3979	1.3979	1.3979
52	Retention Debit (or Credit)	-43.10%	-21.50%	0.00%	38.50%	50.00%
54	Standard Premium (Minor Insured)	$600,000	$600,000	$600,000	$600,000	$600,000
56	Regular Premium (Minor Insured)	$858,406	$729,203	$600,000	$429,203	$300,000
58	Standard Premium (Major Insured)	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000
60	Regular Premium (Major Insured)	$1,716,812	$1,458,406	$1,200,000	$858,406	$600,000

FIG. 2

70

71

		Minor
72	SIR	$1,000,000
73	Regular Premium	$600,000
74	Loss Limit	$25,000,000
75	Log(Loss limit in millions)	1.3979
76	Experience Rated Limit (ERL)	$12,000,000
77	SIR + ERL	$13,000,000
78	Excess Limit	$12,000,000
79	Log (SIR + ERL)	1.1139
80	Excess Limit Factor	125.49%
81	Excess Premium	$152,968

FIG. 3

MINOR INSURED	Minor 1	Minor 2	Minor 3	Major 1	Major 2
Revenue	$900,000,000	$900,000,000	$900,000,000	$3,600,000,000	$3,600,000,000
Loss limit	$25,000,000	$25,000,000	$25,000,000	$25,000,000	$25,000,000
SIR	$250,000	$500,000	$1,000,000	$2,500,000	$5,000,000
Regular Premium	$858,406	$729,203	$600,000	$429,203	$300,000
ERL	$17,168,119	$14,584,059	$12,000,000	$8,584,059	$6,000,000
SIR + ERL	$17,418,119	$15,084,59	$13,000,000	$11,084,059	$11,000,000
Excess Limit	$7,581,881	$9,915,941	$12,000,000	$13,915,941	$14,000,000

FIG. 4A

MINOR INSURED	Minor 1	Minor 2	Minor 3	Major 1	Major 2
Revenue	$900,000,000	$900,000,000	$900,000,000	$3,600,000,000	$3,600,000,000
Loss limit	$25,000,000	$25,000,000	$25,000,000	$25,000,000	$25,000,000
SIR	$250,000	$500,000	$1,000,000	$2,500,000	$5,000,000
Regular Premium	$1,716,812	$1,458,406	$1,200,000	$858,406	$600,000
ERL	$34,336,237	$29,168,119	$24,000,000	$17,168,119	$12,000,000
SIR + ERL	$34,586,237	$29,668,119	$25,000,000	$19,668,119	$17,000,000
Excess Limit	($9,586,237)	($4,668,119)	-	$5,331,881	$8,000,000

FIG. 4B

200

		202	204	206	208
		Minor 1	Minor 2	Major 1	Major 2
210	Revenues	$900,000,000	$900,000,000	$3,600,000,000	$3,600,000,000
212	SIR	$500,000	$1,000,000	$1,000,000	$2,500,000
214	Standard Premium	$600,000	$600,000	$1,200,000	$1,200,000
216	Loss Limit	$25,000,000	$25,000,000	$25,000,000	$25,000,000
218	Retention Credit	21.53%	0.00%	0.00%	-28.47%
220	Limit factor	121.53%	100.00%	100.00%	71.53%
222	Regular premium	$729,203	$600,000	$1,200,000	$858,406
224	Adjusted ERL	$15,000,000	$12,000,000	$24,000,000	$17,000,000
226	Adjusted (SIR+ERL)	$15,500,000	$13,000,000	$25,000,000	$19,500,000
228	Adjusted (Excess Limit)	$9,500,000	$12,000,000	-	$5,500,000
230	Retrospective Base	100%	100%	100%	100%
232	Retrospective Term	12	12	12	12
234	Retrospective Calibrator	50%	50%	50%	50%
236	Retrospective Loss	$8,000,000	$18,000,000	$18,000,000	$28,000,000
238	Experience Rated Loss	$8,000,000	$13,000,000	$18,000,000	$19,500,000
240	Base Retrospective Factor	76%	100%	90%	100%
242	Loss Factor	97%	100%	90%	72%
244	Retrospective Premium Factor	40%	50%	45%	50%
246	Retrospective Premium	$292,208	$300,000	$538,767	$429,203
248	Regular + Retroactive Premium	$1,021,411	$900,000	$1,738,767	$ 1,287,609
250	Excess Premium	$178,146	$229,452	$ -	$ 107,702
252	Total Premium	$1,199,557	$1,129,452	$1,738,767	$1,395,311

FIG. 5

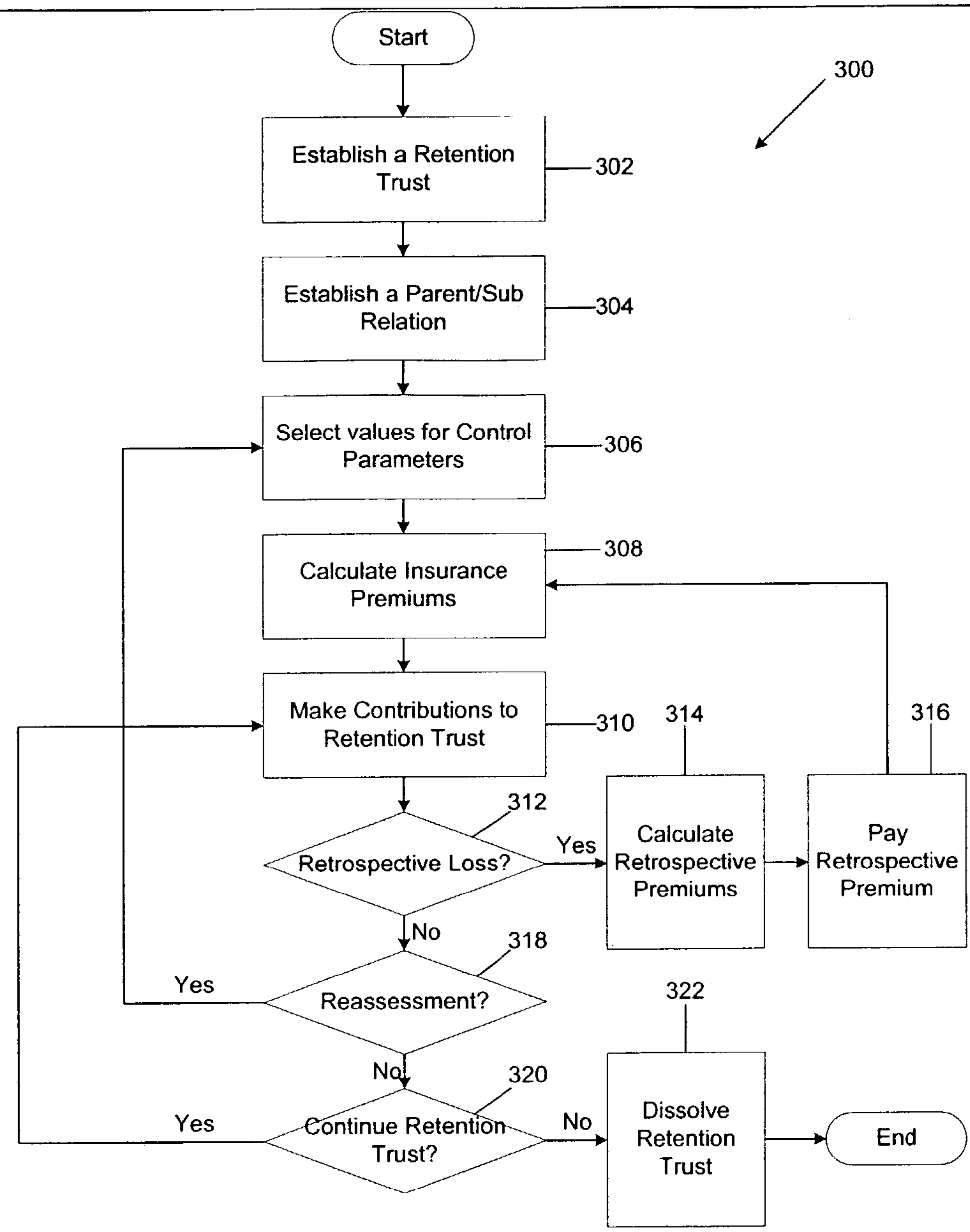
Start
Establish a Retention Trust
302
Establish a Parent/Sub Relation
304
Select values for Control Parameters
306
Calculate Insurance Premiums
308
Make Contributions to Retention Trust
310
314
316
312
Retrospective Loss?
Yes
Calculate Retrospective Premiums
Pay Retrospective Premium
No
318
Yes
Reassessment?
322
No
320
Yes
Continue Retention Trust?
No
Dissolve Retention Trust
End
300

FIG. 6

	ENTERPRISE RISK	RISK TRANSFER		ENTERPRISE RISK	RISK TRANSFER
INSURED' s NAME >	**MINOR**	**MINOR**		**MAJOR**	**MAJOR**
INSURED' s REVENUE >	$ 900,000,000.00	$ 900,000,000.00	**< DATA ENTRY >**	$ 3,600,000,000.00	$ 3,600,000,000.00
INSURED's RETENTION & LIMITS					
RETENTION AMOUNT $	$ 500,000.00	$ 1,000,000.00	**< DATA ENTRY-S.I.R Selected by Insured >**	$ 1,000,000.00	$ 2,500,000.00
EXPERIENCE RATED LIMIT	$ 15,000,000.00	$ 12,000,000.00	< '=D8-D6 [(S.I.R.+E.R.L) -(S.I.R)] >	$ 24,000,000.00	$ 17,000,000.00
S.I.R.+ EXP. RATED LIMIT	$ 15,500,000.00	$ 13,000,000.00	=IF((ROUND(D14*20,-6)+D6)<25000000,ROUND(D14*20,-6)+D6,25000000)	$ 25,000,000.00	$ 19,500,000.00
EXCESS LIMITS	UNLIKELY	$ 12,000,000.00	< '=D10-D8 >	$ -	$ 5,500,000.00
POLICY LIMIT	$ 15,500,000.00	$ 25,000,000.00	**< POLICY LIMIT >**	$ 25,000,000.00	$ 25,000,000.00
INSURER's RETRO FACTORS					
RETRO Indicator	BREAKEVEN >	BREAKEVEN >	**Base Needed To**	BREAKEVEN >	BREAKEVEN >
RETRO BASE %	1	1	**As % of Regular**	1	1
RETRO TERM	12	12	**Max Yrs per Loss**	12	12
RETRO Calibrator	0.5	0.5	**Max % per Loss**	0.5	0.5
INSURED's PREMIUMS					
STANDARD PREMIUM	$ 600,000.00	$ 600,000.00	**< '=20*SQRT(D3) >**	$ 1,200,000.00	$ 1,200,000.00
RETENTION CREDIT %	-22%	0%	'=LOG(D6/1000000)/LOG(25) [(LOG S.I.R.) / (LOG 25)]	0%	28%
REGULAR PREMIUM >	$ 729,202.97	$ 600,000.00	=(D20)(1-D21) [Std.Premium*Reciprocal of Retention Cre	$ 1,200,000.00	$ 858,405.93
RETRO PREMIUM FACTOR	92%	82%	From Table B Total below	70%	48%
RETRO PREMIUM >	$ 671,271.92	$ 489,637.25	Retro Premium Factor * Regular Premium*Retro B	$ 840,990.18	$ 413,034.98
REGULAR & RETRO PREMIUM >	$ 1,400,474.89	$ 1,089,637.25	**< SUBTOTALS >**	$ 2,040,990.18	$ 1,271,440.91
EXCESS PREMIUM indication	UNLIKELY	$ 277,799.89	**< INDICATIONS >**	$	$ 106,350.12
PREMIUM TOTAL	$ 1,400,474.89	$ 1,367,437.14	**< TOTALS >**	$ 2,040,990.18	$ 1,377,791.04
A: LOSSES & LIMITS	PRIOR YEAR LOSSES		**A: LOSSES & LIMITS**		
Prior Year Loss	*Enter amounts below*	*Enter amounts below*		*Enter amounts below*	*Enter amounts below*
1st Loss >	$ 18,000,000.00	$ 18,000,000.00	See Rrtention Trust Exhibits	$ 18,000,000.00	$ 18,000,000.00
2nd Loss >	$ 2,300,000.00	$ 2,300,000.00	See Rrtention Trust Exhibits	$ 2,300,000.00	$ 2,300,000.00
3rd Loss >	$ 2,200,000.00	$ 2,200,000.00	See Rrtention Trust Exhibits	$ 2,200,000.00	$ 2,200,000.00
TOTAL	$ 22,500,000.00	$ 22,500,000.00	**< TOTALS >**	$ 22,500,000.00	$ 22,500,000.00
B: LOSSES & PREMIUMS	CURRENT YEAR PREMIUMS		**B: LOSSES & PREMIUMS-RETRO FACTORS**		
LOSS	LOSS FACTOR 1	LOSS FACTOR 1	PRIOR YR EXPERIENCE RATED LOSSES > CURRENT YEAR RETROSPECTIVE PREMIUM FACTORS	LOSS FACTOR 1	LOSS FACTOR 1
1st Loss >	50%	50%	See Rrtention Trust Exhibits	45%	48%
2nd Loss >	21%	16%	See Rrtention Trust Exhibits	13%	0%
3rd Loss >	21%	15%	See Rrtention Trust Exhibits	12%	0%
TOTAL	92%	82%	**< TOTALS >**	70%	48%
B: LOSSES & PREMIUMS			**B: LOSSES & PREMIUMS-RETRO PREMIUMS**		
	$ 364,601.48	$ 300,000.00	**1st Loss > $18,000,000**	$ 538,766.68	$ 413,034.98
	$ 155,767.96	$ 97,418.20	**2nd Loss > $ 2,300,000**	$ 155,254.66	$ -
	$ 150,902.47	$ 92,219.06	**3rd Loss > $ 2,200,000**	$ 146,968.83	$ -
	$ 671,271.92	$ 489,637.25	**TOTALS to RETRO PREMIUM**	$ 840,990.18	$ 413,034.98

FIG. 7

SUMMARY COMPARISON -10 YEAR TERM	RETENTION TRUST	RETENTION TRUST	SUMMARY COMPARISON -10 YEAR TERM SINGLE INSURED	BANKING EXCESS	RETENTION TRUST
CATEGORY	TRO BASE before adjustm	ETRO BASE after adjustme	RETRO BASE is the per cent applied to Regular Premium so Premium "Breaks even" with incurred claims and expenses.	ETRO BASE after adjustme	INCREASE (DECREASE)
INSURED:	MAJOR	MAJOR		MAJOR	MAJOR
INSURED's REVENUE:	$ 3,600,000,000	$ 3,600,000,000		$ 3,600,000,000	$ -
RETENTION & LIMITS	STRUCTURE	STRUCTURE		STRUCTURE	STRUCTURE
RETENTION $	$ 1,000,000	$ 1,000,000		$ 1,000,000	$ -
EXP. RATED LIMIT	$ 24,000,000	$ 24,000,000		$ 24,000,000	$ -
S.I.R + EXP. RTD. LIMIT	$ 25,000,000	$ 25,000,000	< Enterprise Risks included within this Limit >	$ 25,000,000	$ -
EXCESS LIMITS	$ -	$ -	Risk Transfer in Excess Limit must be fortuitous	$ -	$ -
POLICY LIMIT	$ 25,000,000	$ 25,000,000		$ 25,000,000	$ -
RETRO FACTORS	RETRO Factors	RETRO Factors		RETRO Factors	RETRO Factors
RETRO Indicator	134.2%	102.2%	Indicated RETRO BASE per cent after *entering the previous Retro Indicator Retro of* 134.2% as the Retro Base %. The resulting Retro Indicator should then be 100.0% [Is 102.2%]	102.2%	0%
RETRO BASE %	100%	134.2%	RETRO BASE changed to correspond to RETRO Indicator %	135.4%	1.2%
RETRO TERM	12	12		12	0.0%
RETRO Calibrator	100%	100%		100%	0.0%
INSURED's PREMIUMS	PREMIUMS	PREMIUMS		PREMIUMS	PREMIUMS
STD. PREMIUM	$ 12,000,000	$ 12,000,000		$ 12,000,000	$ -
S.I.R. CREDIT / DEBIT	0.0%	0.0%		0.0%	0.0%
REGULAR PREMIUM	$ 12,000,000	$ 12,000,000		$ 12,000,000	$ -
RETRO PREMIUM	209.3%	280.9%		283.4%	2.5%
RETRO PREM.	$ 25,116,270	$ 33,706,035	134.2% more Retro Premium due to change in RETRO BASE	$ 34,007,430	$ 301,395
REGULAR & RETRO >	$ 37,116,270	$ 45,706,035		$ 46,007,430	$ 301,395
EXCESS PREM.	$ -	$ -	Risk Transfer in Excess Limit must be fortuitous	$ -	$ -
PREMIUM TOTAL	$ 37,116,270	$ 45,706,035	Indicated RETRO BASE per cent after entering the previous Retro Indicator Retro of 134.2% as the Retro Base %. The resulting Indicated base should then be 100%	$ 46,007,430	$ 301,395
EXP. RATED LOSSES- *Incurred Claims within 10 year term*	$ 57,137,289	$ 57,137,289	EXP. RATED LOSSES: 10 year totals are shown for 16 losses greater than $1,000,000 entered in Simulation Exhibit.	$ 57,137,289	$ -
RETENTION TRUST					
EXPENSES-Fixed	$ (500,000)	$ (500,000)		$ (1,000,000)	$ (500,000)
EXPENSES-Variable	$ -	$ -		$ (4,600,743)	$ (4,600,743)
EXPENSE TOTAL	$ (500,000)	$ (500,000)		$ (5,600,743)	$ (5,100,743)
EXP. RATED LOSSES-PAYOUT Claims within 10 years.	$ (50,687,289)	$ (50,687,289)	CLAIMS-CASH FLOWS; EXP. RATED LOSSES-PAYOUT Claims within 10 years.	$ (57,137,289)	$ (6,450,000)
BEGINNING BALANCE	$ 25,000,000	$ 25,000,000	TRUST INVESTMENT BALANCES-10 YEAR SUMMARY	$ 25,000,000	$ 25,000,000
REGULAR PREMIUM >	$ 12,000,000	$ 12,000,000		$ 12,000,000	$ -
RETRO PREMIUM >	$ 25,116,270	$ 33,706,035	< $8.589,764 Increase in Retro Premium or 34.2%	$ 34,007,430	$ 301,395
BALANCE	$ 62,116,270	$ 70,706,035		$ 71,007,430	$ 301,395
INTEREST INCOME	$ 6,646,753	$ 7,817,372	< $1,170,619 Increase in Investment Income	$ 7,258,680	$ (558,691)
EXPENSE & CLAIMS PAID	$ (51,187,289)	$ (50,687,289)		$ (57,137,289)	$ (6,450,000)
ENDING BALANCE-Investments	$ 17,575,734	$ 27,336,117	< $9,760,683 Increase in ENDING BALANCE	$ 21,128,821	$ (6,207,296)
	RETENTION TRUST Before Base Adjustment	RETENTION TRUST After Base Adjustment		BANKING EXCESS After Base Adjustment	BANKING EXCESS vs RETENTION TRUST Favorable (Adverse)
EXPENSES-Fixed	$ 500,000	$ 500,000	< Assumes $50,000 annually / Assumes $100,000 annually >	$ 1,000,000	$ (500,000)
EXPENSES-Variable	$ -	$	*Assumes Variable Expenses of 10% of* Premium >	$ 4,600,743	$ (4,600,743)
Expense & Profit	$ 500,000	$ 500,000		$ 5,600,743	$ (5,100,743)
Investment Income	$ (6,646,753)	$ (7,817,372)	Assumes 3% Interest Rate	$ (7,258,680)	$ (558,691)
Expense and Income	$ (6,146,753)	$ (7,317,372)	Net Reduction due to assumed higher expenses	$ (1,657,937)	$ (5,659,434)
RETRO PREMIUM >			Net Increase to offset assumed higher expenses		$ (547,862)
			ENDING BALANCE-Investments		$ (6,207,296)

FIG. 8

DESCRIPTION	INSURANCE	RETENTION TRUST ENTERPRISE RISK	RETENTION TRUST RISK TRANSFER	BANKING EXCESS	INEXCHANGE CAPTIVE	COMMENTS
Indemnity Source	Commercial Insurer (s)	Revolving Fund-through a Trust, Captive Insurer or Protected Cell program	< SAME But can also incorporate insurance	Insurer Sponsored Insurance Plan	Insurer Sponsored Inter-Industry Captive Insurance Company	
Underwriting	Prospective premiums based on **subjective** estimates of exposure as modified by	Retrospective premiums based on incurred losses provide an **objective** experience based	< SAME But can also incorporate insurance	< SAME >	Retrospective premiums based on incurred losses provides an **objective** experience based	Simple, transparent and objective
Control	Insurer and re-insurers	Insured 100%	Insured and Insurer	Insured and Insurer	Insured and Insurer	
Document	Insurance Policy	Trust Document or Insurance Policy	Trust Document or Insurance Policy	Insurance Policy	Insurance Policy	
A. Retention	Negotiated through Insured's broker with Insurer(s)	Set by Insured-likely to be constant once established.	Set by Insured-likely to be constant once established.	Set by Insured. Can be changed annually	Set by Insured. Can be changed annually	
B. Premiums	Negotiated through Insured's broker with Insurer(s)	Set by Insured-subject to retention selection and retro premiums for incurred	Insured and Insurer	Insurer sets within agreed parameters.	Insured and Insurer	
C. Retro Indicator	Not Applicable	Computed by model for single Insured	Computed by model for single Insured	Computed by model for single Insured	Computed by model for each and all Insureds	Retro Premium Base needed to Break-even
D. Retro Premium Base	Not Applicable	Set by Trust Administrator per Insured's Instructions	Set by Trust Administrator per Insured's Instructions	Insurer sets within agreed parameters.	Set by Insurer	% Factor applied to Regular Premium for Retro Premium calculation
E. Retro Term	Not Applicable	Set by Trust Administrator per Insured's Instructions	Set by Trust Administrator per Insured's Instructions	Insurer sets within agreed parameters.	Set by Insurer	Maximum Retro term needed for a single Limit Loss.
F. Retro Calibrator	Not Applicable	Computed by model for single Insured	Computed by model for single Insured	Computed by model for single Insured	Computed by model for each and all Insureds	Maximum Retro premium increase permitted for Limit Loss.
Premium reflects	Industry experience, investment outlook,	Insured's SIR selections and loss experience	Insured's SIR selections and loss experience	Insured's SIR, losses; Insurer's retro factors	Insured's SIR selections, its losses and changes in the Insurer's retro factors	

FIG. 9A

DESCRIPTION	INSURANCE	RETENTION TRUST ENTERPRISE RISK	RETENTION TRUST RISK TRANSFER	BANKING EXCESS	INEXCHANGE CAPTIVE	COMMENTS
Capital requirements	None	Insurance limits are 100% funded by Insured	Experience rated limits are funded by Insured. Excess limits by Insurer	Negotiable	Capital requirement of up to 2X's premium per Insured.	.
Duration	Short term risk transfer-generally one year	Long term loss transfer in a multi-year program.	Long term loss transfer in a multi-year program.	Long term: multi-year program.	Long term loss transfer in a multi-year program.	.
Risk Transfer	Yes	No-spreads loss over years.	Yes-spreads loss over years + Excess Limits	No-spreads loss over years.	Yes-spreads loss over years + Excess Limits	.
Loss Requirements	Losses must be definite in time, place & amount. Fortuitous & not subject to catastrophic events	Losses must be definite in time, place & amount. Losses do not have to be fortuitous & can be subject to catastrophic events	Losses must be definite in time, place & amount. Losses must be fortuitous & not subject to catastrophic events	Negotiable	Losses must be definite in time, place & amount. Losses must be fortuitous & not subject to catastrophic events	.
Loss Limits	Per Loss and in the Aggregate per year	Per Loss and in the Aggregate per year	Per Loss and in the Aggregate per year	Negotiable	Per Loss subject to an All Years Aggregate.	
Stability	Unstable, volatile	Predictable-Finite Risk Plan	Predictable-Finite Risk Plan	Predictable-Finite Risk Plan	Predictable-Finite Risk Plan	
Financial Strength	Good=s $2 premium to $1 of PHS [capital] for a conventional insurer.	Superior=Full funding of policy limit. Recourse to Parent	Superior=Full funding of experience rated limit. Recourse to Parent	Dependent on Insurer's financial strength	Excellent=s $1 premium to $2 of capital or 4 X's stronger than conventional insurer.	
Plan Asset Ownership	General assets - commercial Insurer	Trust Assets-Controlled by Insured [Beneficiary]	Trust Assets-Controlled by Insured [Beneficiary]	General assets - commercial Insurer	Captive Insurer's general assets-Insured's premium deposit serves as equity	
Efficiency Rank Estimate: 1=Best 5=Worst	5th-Property/Casuality Insurers have 35-40% expense ratios vs. 5% for employee benefits. Industry has had an 80 yr net underwriting loss	1st-Expenses should be less than 5% of premium: No sales charges; No insurance costs; Low unallocated loss adjustment costs.	2nd-Expenses should be more than 5% of premium reflecting sales charges and insurance costs.	4th-Banking Excess Plans are currently a specialty market and little is known about such Plans.	3rd-Group captives have historically had low operating expenses.	
Net Income	Earned for shareholders can be distributed to owners as dividends.	Earned by Trust, can be distributed to Insured as owner and beneficiary.	Earned by Trust, can be distributed to Insured as owner and beneficiary.	Negotiable-but likely retained by Insurer	Earned by Insurer, but can be distributed as dividends or premium credits.	
Termination Effect	None-except coverage loss.	Insured can recover assets. Trust may retain liabilities.	Insured can recover assets. Trust may retain liabilities.	Insured subject to all years aggregate loss limit and possible capital loss.	Insured subject to all years aggregate loss limit and possible capital loss.	

FIG. 9B

A1	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2	INSURED:	MAJOR ENTITY		COMPOSITE	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
3	INSURED's REVENUE >		$ 3,600,000,000		NOTE ANY CELL IN BLUE INSURED'S NAME, REVENUE, RETENTION as well as LOSS DATE(s) and LOSS AMOUNT CAN BE CHANGED									
4	REVENUE	% CHANGE >	0.00%	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000	$ 3,600,000,000
5														
6	INSURED's RETENTION & LIMITS				NOTE INSURED CAN CHANGE ITS RETENTION UP OR DOWN ONCE A YEAR SUBJECT TO A $1 MILLION MINIMUM									
7	RETENTION AMOUNT $		$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
8	EXPERIENCE RATED LIMIT		$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000
9	S.I.R.+ EXP. RATED LIMIT		$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000
10	EXCESS LIMITS		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
11	POLICY LIMIT		$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000
12														
13	INSURER's RETRO FACTORS													
14	RETRO Indicator	Base Needed To	BREAKEVEN >		131.9%	133.7%	130.1%	127.4%	138.1%	138.8%	133.9%	130.3%	127.5%	125.8%
15	RETRO BASE %	As % of Regular	100%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
16	RETRO TERM	Max Yrs per Loss	10.00		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
18	RETRO Calibrator	Max % per Loss	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
19														
20	INEXCHANGE PREMIUMS													
21	STANDARD PREMIUM		$ 1,200,000	$ 12,000,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
22	RETENTION CREDIT %		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
23	REGULAR PREMIUM >		$ 1,200,000	$ 12,000,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
24	RETRO PREMIUM	% of Regular >		287.20%	0.00%	188.69%	200.77%	207.15%	223.47%	361.03%	375.49%	399.83%	417.32%	498.30%
25	RETRO PREMIUM			$ 34,464,467	$ -	$ 2,264,243	$ 2,409,288	$ 2,485,799	$ 2,681,610	$ 4,332,376	$ 4,505,898	$ 4,797,904	$ 5,007,790	$ 5,979,559
26	REGULAR & RETRO >		$ 1,200,000	$ 46,464,467	$ 1,200,000	$ 3,464,243	$ 3,609,288	$ 3,685,799	$ 3,881,610	$ 5,532,376	$ 5,705,898	$ 5,997,904	$ 6,207,790	$ 7,179,559
27	EXCESS PREM.	0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
28	PREMIUM TOTAL		$ 1,200,000	$ 46,464,467	$ 1,200,000	$ 3,464,243	$ 3,609,288	$ 3,685,799	$ 3,881,610	$ 5,532,378	$ 5,705,898	$ 5,997,904	$ 6,207,790	$ 7,179,559
29														
30	LOSS No.	LOSS AMOUNT	RETENTION	LOSS-LESS S.I.R.	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
31	1 01	$ 1,127,289	$ (1,000,000)	$ 127,289	$127,289									
32	1 02	$ 2,200,000	$ (1,000,000)	$ 1,200,000	$1,200,000									
33	1 03	$ 2,300,000	$ (1,000,000)	$ 1,300,000	$1,300,000									
34	1 04	$ 18,000,000	$ (1,000,000)	$ 17,000,000	$17,000,000									
35	2 01	$ 1,400,000	$ (1,000,000)	$ 400,000		$400,000								
36	3 02	$ 3,500,000	$ (1,000,000)	$ 2,500,000			$2,500,000							
37	4 01	$ 3,500,000	$ (1,000,000)	$ 2,500,000				$2,500,000						
38	4 02	$ 1,010,000	$ (1,000,000)	$ 10,000				$10,000						
39	5 01	$ 30,000,000	$ (1,000,000)	$ 29,000,000					$24,000,000					
40	5 02	$ 1,200,000	$ (1,000,000)	$ 200,000					$200,000					
41	6 01	$ 1,750,000	$ (1,000,000)	$ 750,000						$750,000				
42	6 02	$ 1,100,000	$ (1,000,000)	$ 100,000						$100,000				
43	7 01	$ 7,500,000	$ (1,000,000)	$ 6,500,000							$6,500,000			
44	8 01	$ 7,050,000	$ (1,000,000)	$ 6,050,000								$6,050,000		
45	9 01	$ 7,500,000	$ (1,000,000)	$ 6,500,000									$6,500,000	
46	10 1	$ 5,000,000	$ (1,000,000)	$ 4,000,000										$4,000,000
47	TOTAL LOSSES	$ 94,137,289	$ (16,000,000)	$ 78,137,289										
48	EXPERIENCE RATED LOSSES			$ 73,137,289	$ 19,627,289	$ 400,000	$ 2,500,000	$ 2,510,000	$ 24,200,000	$ 850,000	$ 6,500,000	$ 6,050,000	$ 6,500,000	$ 4,000,000
49	PROFORMA PROJECTION		No. with Losses	10	10	10	10	10	10	10	10	10	10	10
50			No. W/O Losses	90	90	90	90	90	90	90	90	90	90	90
51			No. of insureds	100	100	100	100	100	100	100	100	100	100	100
52	PREMIUM REVENUE													
53	REGULAR & RETRO PREMIUM >			############	$ 120,000,000	$ 142,642,429	$ 144,092,876	$ 144,857,994	$ 146,816,101	$ 163,323,764	$ 165,058,980	$ 167,979,041	$ 170,077,900	$ 179,795,588
54	EXCESS PREMIUM		>	############	$ 108,000,000	$ 108,000,000	$ 108,000,000	$ 108,000,000	$ 108,000,000	$ 108,000,000	$ 108,000,000	$ 108,000,000	$ 108,000,000	$ 108,000,000
55	OPRATING REVENUE			############	$ 228,000,000	$ 250,642,429	$ 252,092,876	$ 252,857,994	$ 254,816,101	$ 271,323,764	$ 273,058,980	$ 275,979,041	$ 278,077,900	$ 287,795,588
56														
57	CLAIMS	EXP. RATED LIMIT		$ -	$(250,000,000)	$(237,465,422)	$(227,752,455)	$(174,339,605)	$(208,349,455)	$(192,565,489)	$(174,912,608)	$(108,339,883)	$(141,568,060)	$(151,214,718)
58	CLAIMS	EXCESS LIMITS		$ (344,644,672)	$ -	$ (22,642,429)	$ (24,092,876)	$ (24,857,994)	$ (26,816,101)	$ (43,323,764)	$ (45,058,980)	$ (47,979,041)	$ (50,077,900)	$ (59,795,588)
59	CLAIMS INCURRED / PAID			$ (344,644,672)	$(250,000,000)	$(260,107,851)	$ (251,845,330)	$(199,197,599)	$(235,165,556)	$(235,889,253)	$(219,971,588)	$(156,318,924)	$(191,645,960)	$(211,010,305)
60	EXPENSES & TAXES @ ENTER %		15.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
61	OPRATING EXPENSES -			$ (344,644,672)	$(250,000,000)	$(260,107,851)	$(251,845,330)	$(199,197,599)	$(235,165,556)	$(235,889,253)	$(219,971,588)	$(156,318,924)	$(191,645,960)	$(211,010,305)
62														
63	OPERATING PROFIT or (LOSS)			#############	$ (22,000,000)	$ (9,465,422)	$ 247,545	$ 53,660,395	$ 19,650,545	$ 35,434,511	$ 53,087,392	$ 119,660,117	$ 86,431,940	$ 76,785,282
64														
66	INVESTMENT INCOME @		5.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
66	NET INCOME BEFORE TAXES			$ 2,280,000,000	$ (22,000,000)	$ (9,465,422)	$ 247,545	$ 53,660,395	$ 19,650,545	$ 35,434,511	$ 53,087,392	$ 119,660,117	$ 86,431,940	$ 76,785,282
67	INCOME TAXES		35.00%	$ 320,670,014	$ (70,916,068)	$ 78,445,814	$ 68,002,191	$ 60,456,726	$ (69,659,541)	$ 74,416,592	$ 39,133,649	$ 42,997,439	$ 40,373,407	$ 57,419,802

FIG. 10A

68	NET INCOME AFTER TAXES			$	$ (92,916,068)	$ 68,960,392	$ 68,249,736	$ 114,117,123	$ (50,006,996)	$ 109,661,103	$ 92,221,041	$ 162,657,556	$ 126,805,346	$ 134,205,086
69														
70	CAPITAL-Beginning			$ 399,526,632	$ (70,916,068)	$ 5,251,797	$ 321,761,936	$ 697,699,027	$ 1,173,160,014	$ 1,408,789,669	$ 1,878,696,014	$ 2,362,664,288	$ 2,956,153,151	$ 3,549,863,469
71	NET INCOME AFTER TAXES			$ (40,382,582)	$ (92,916,068)	$ 68,960,392	$ 68,249,736	$ 114,117,123	$ (50,006,996)	$ 109,661,103	$ 92,221,041	$ 162,657,556	$ 126,805,346	$ 134,205,086
72	USES-DIVIDENDS		10.00%	$ 599,144,050	$ 169,083,932	$ 247,629,746	$ 307,687,356	$ 361,343,865	$ 265,638,661	$ 380,065,243	$ 391,747,233	$ 430,831,307	$ 466,904,971	$ 520,287,432
73	CAPITAL-Ending			$	$ 5,251,797	$ 321,761,936	$ 697,699,027	$ 1,173,160,014	$ 1,408,789,669	$ 1,878,696,014	$ 2,362,664,288	$ 2,956,153,151	$ 3,549,863,469	$ 4,204,355,956
74														
75	OPERATING RATIOS													
76	OPERATING RATIO	EXP RATED LIMIT		0.00%	208.33%	166.48%	158.06%	120.35%	141.91%	117.90%	105.97%	64.50%	83.24%	84.10%
77	OPERATING RATIO	EXCESS LIMITS		31.91%	0.00%	20.97%	22.31%	23.02%	24.83%	40.11%	41.72%	44.43%	46.37%	55.37%
78	COMBINED RATIO			13.13%	109.65%	103.78%	99.90%	78.78%	92.29%	86.94%	80.56%	56.64%	68.92%	73.32%
79														
80	Excess Prem. as % of Reg & Retro		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
49														
50	RETENTION TRUST													
51	CASH FLOWS													
52	1st YEAR	20%			$ (3,925,458)	$ (80,000)	$ (500,000)	$ (502,000)	$ (4,840,000)	$ (170,000)	$ (1,300,000)	$ (1,210,000)	$ (1,300,000)	$ (800,000)
53	2nd YEAR	30%				(5,888,187)	(120,000)	(750,000)	(753,000)	(7,260,000)	(255,000)	(1,950,000)	(1,815,000)	(1,950,000)
54	3rd YEAR	50%					(9,813,645)	(200,000)	(1,250,000)	(1,255,000)	(12,100,000)	(425,000)	(3,250,000)	(3,025,000)
55	PAYOUT	100%			$ (3,925,458)	$ (5,968,187)	$ (10,433,645)	$ (1,452,000)	$ (6,843,000)	$ (8,685,000)	$ (13,655,000)	$ (3,585,000)	$ (6,365,000)	$ (5,775,000)
56														
57	BEGINNING BALANCE				$ 25,000,000	$ 23,746,542	$ 22,775,245	$ 17,433,961	$ 20,834,945	$ 19,256,549	$ 17,491,261	$ 10,833,988	$ 14,156,806	$ 15,121,472
58	REGULAR PREMIUM >				$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
59	RETRO PREMIUM >				$	$ 2,264,243	$ 2,409,288	$ 2,485,799	$ 2,681,610	$ 4,332,376	$ 4,505,896	$ 4,797,904	$ 5,007,790	$ 5,979,559
60	BALANCE				$ 26,200,000	$ 27,210,785	$ 26,384,533	$ 21,119,760	$ 24,716,566	$ 24,788,925	$ 23,197,159	$ 16,831,892	$ 20,364,596	$ 22,301,031
61	INTEREST INCOME	6%			$ 1,572,000	$ 1,632,647	$ 1,583,072	$ 1,267,186	$ 1,482,993	$ 1,487,336	$ 1,391,830	$ 1,009,914	$ 1,221,876	$ 1,338,062
62	CLAIM DISBURSEMENTS				$ (3,925,458)	$ (5,968,187)	$ (10,433,645)	$ (1,452,000)	$ (6,843,000)	$ (8,685,000)	$ (13,666,000)	$ (3,585,000)	$ (6,365,000)	$ (5,775,000)
63	EXPENSE PAYMENTS	$ (100,000)			$ (100,000)	$ (100,000)	$ (100,000)	$ (100,000)	$ (100,000)	$ (100,000)	$ (100,000)	$ (100,000)	$ (100,000)	$ (100,000)
64	ENDING BALANCE				$ 23,746,542	$ 22,775,245	$ 17,433,961	$ 20,834,945	$ 19,256,549	$ 17,491,261	$ 10,833,988	$ 14,156,808	$ 15,121,472	$ 17,764,092
65														
66	4 A: -LOSSES; RETENTIONS & LIMITS							4 B: INCURRED RETRO PREMIUMS				INCURRED	PAID WITHIN	RETRO
67	DATE OF LOSS	LOSS	RETENTION	EXP RATED LIMIT	S I R + EXP RTD LIMIT	EXCESS LIMITS	OVER POLICY LIMITS	REGULAR				IN YEAR	10 YR TERM	RECEIVABLE
68	YR AND NO	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	PREMIUM	LOSS FACTORS	YEARS	TIL RETRO %	TOTAL RETRO $	TOTAL RETRO $	BALANCE
69	1.01	$1,127,289	$ (1,000,000)	$ 127,289	$ 1,127,289			$ 1,200,000	4.96%	0.37	1.85%	$ 22,163	$ (22,163)	$ -
70	1.02	$2,200,000	$ (1,000,000)	$ 1,200,000	$ 2,200,000			$ 1,200,000	32.65%	2.45	79.98%	$ 959,753	$ (959,753)	$ -
71	1.03	$2,300,000	$ (1,000,000)	$ 1,300,000	$ 2,300,000			$ 1,200,000	34.49%	2.59	89.25%	$ 1,071,021	$ (1,071,021)	$ -
72	1.04	$18,000,000	$ (1,000,000)	$ 17,000,000	$ 18,000,000			$ 1,200,000	119.70%	8.98	1074.80%	$ 12,897,643	$ (12,897,643)	$ -
73	2.01	$1,400,000	$ (1,000,000)	$ 400,000	$ 1,400,000			$ 1,200,000	13.93%	1.05	14.57%	$ 174,784	$ (174,784)	$ -
74	3.02	$3,500,000	$ (1,000,000)	$ 2,500,000	$ 3,500,000			$ 1,200,000	51.88%	3.89	201.91%	$ 2,422,929	$ (2,422,929)	$ -
75	4.01	$3,500,000	$ (1,000,000)	$ 2,500,000	$ 3,500,000			$ 1,200,000	51.88%	3.89	201.91%	$ 2,422,929	$ (2,422,929)	$ -
76	4.02	$1,010,000	$ (1,000,000)	$ 10,000	$ 1,010,000			$ 1,200,000	0.41%	0.03	0.01%	$ 153	$ (153)	$ -
77	5.01	$30,000,000	$ (1,000,000)	$ 24,000,000	$ 25,000,000	$ -	$5,000,000	$ 1,200,000	133.30%	10.00	1333.00%	$ 15,996,000	$ (7,998,000)	$ 7,998,000
78	5.02	$1,200,000	$ (1,000,000)	$ 200,000	$ 1,200,000			$ 1,200,000	7.55%	0.57	4.28%	$ 51,319	$ (51,319)	$ -
79	6.01	$1,750,000	$ (1,000,000)	$ 750,000	$ 1,750,000			$ 1,200,000	23.17%	1.74	40.29%	$ 483,485	$ (483,485)	$ -
80	6.02	$1,100,000	$ (1,000,000)	$ 100,000	$ 1,100,000			$ 1,200,000	3.95%	0.30	1.17%	$ 14,024	$ (14,024)	$ -
81	7.01	$7,500,000	$ (1,000,000)	$ 6,500,000	$ 7,500,000			$ 1,200,000	83.44%	6.26	522.31%	$ 6,267,744	$ (3,003,880)	$ 3,263,864
82	8.01	$7,050,000	$ (1,000,000)	$ 6,050,000	$ 7,050,000			$ 1,200,000	80.88%	6.07	490.73%	$ 5,888,704	$ (1,941,089)	$ 3,947,614
83	9.01	$7,500,000	$ (1,000,000)	$ 6,500,000	$ 7,500,000			$ 1,200,000	83.44%	6.26	522.31%	$ 6,267,744	$ (1,001,293)	$ 5,266,451
84	10.10	$5,000,000	$ (1,000,000)	$ 4,000,000	$ 5,000,000			$ 1,200,000	66.65%	5.00	333.25%	$ 3,999,000	$ -	$ 3,999,000
85	SUMMARY	$ 94,137,289	$ (21,000,000)	$ 73,137,289	$ 89,137,289	$ -	$5,000,000					$ 58,939,396	$ (34,464,467)	$ 24,474,929
86														
87														
88	7A: LOSS ADJUSTMENT FACTORS-Payable by Year													
89	INSURED'S RETENTION AMOUNT $				$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
90	INSURED'S EXPERIENCE RATED LIMIT				$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000
91	INSURED'S RETENTION + EXPERIENCE RATED LIMIT				$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000	$ 25,000,000
92	LOSS NO.	S I R + EXP RTD LIMIT	LOSS FACTOR	DURATION-YEARS	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
93	1.01	$ 1,127,289	4.96%	0.37		1.85%								
94	1.02	$ 2,200,000	32.65%	2.45		32.65%	32.65%	14.68%						
95	1.03	$ 2,300,000	34.49%	2.59		34.49%	34.49%	20.27%						
96	1.04	$ 18,000,000	119.70%	8.98		119.70%	119.70%	119.70%	119.70%	119.70%	119.70%	119.70%	119.70%	117.24%
97	2.01	$ 1,400,000	13.93%	1.05			13.93%	0.83%						
98	3.02	$ 3,500,000	51.88%	3.89				51.88%	51.88%	51.88%	46.27%			
99	4.01	$ 3,500,000	51.88%	3.89					51.88%	51.88%	51.88%	46.27%		
100	4.02	$ 1,010,000	0.41%	0.03					0.01%					
101	5.01	$ 25,000,000	133.30%	10.00						133.30%	133.30%	133.30%	133.30%	133.30%

FIG. 10B

102	5.02	$ 1,200,000	7.55%	0.57						4.28%				
103	6.01	$ 1,750,000	23.17%	1.74							23.17%	17.12%		
104	6.02	$ 1,100,000	3.95%	0.30							1.17%			
105	7.01	$ 7,500,000	83.44%	6.26								83.44%	83.44%	83.44%
106	8.01	$ 7,050,000	80.88%	6.07									80.88%	80.88%
107	9.01	$ 7,500,000	83.44%	6.26										83.44%
108	10.10	$ 5,000,000	66.65%	5.00										
109	PREMIUM FACTORS	$ 89,137,289		59.44		188.69%	200.77%	207.15%	223.47%	361.03%	375.49%	399.83%	417.32%	498.30%
110														
111	7B: LOSS ADJUSTMENT FACTORS-Incurred by Year													
112	INCURRED RETRO PREMIUM		LOSS FACTOR	DURATION-YRS	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
113	1.01	$ 1,127,289	5.0%	0.37	1.8%									
114	1.02	$ 2,200,000	32.7%	2.45	80.0%									
115	1.03	$ 2,300,000	34.5%	2.59	89.3%									
116	1.04	$ 18,000,000	119.7%	8.98	1074.6%									
117	2.01	$ 1,400,000	13.9%	1.05		14.6%								
118	3.02	$ 3,500,000	51.9%	3.89			201.9%							
119	4.01	$ 3,500,000	51.9%	3.89				201.9%						
120	4.02	$ 1,010,000	0.4%	0.03				0.0%						
121	5.01	$ 25,000,000	133.3%	10.00					1333.0%					
122	5.02	$ 1,200,000	7.6%	0.57					4.3%					
123	6.01	$ 1,750,000	23.2%	1.74						40.3%				
124	6.02	$ 1,100,000	3.9%	0.30						1.2%				
125	7.01	$ 7,500,000	83.4%	6.26							522.3%			
126	8.01	$ 7,050,000	80.9%	6.07								490.7%		
127	9.01	$ 7,500,000	83.4%	6.26									522.3%	
128	10.10	$ 5,000,000	66.7%	5.00										333.3%
129	INCURRED RETRO FACTORS				1245.88%	14.57%	201.91%	201.92%	1337.28%	41.46%	522.31%	490.73%	522.31%	333.25%
130	REGULAR PREMIUM >				$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
131	INCURRED RETRO PREMIUM		@ 100 %		$ 14,950,581	$ 174,784	$ 2,422,929	$ 2,423,082	$ 16,047,319	$ 497,509	$ 6,267,744	$ 5,888,704	$ 6,267,744	$ 3,999,000
132	RETRO BASE %	As % of Regular			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
133	INCURRED RETRO PREMIUM				$ 14,950,581	$ 174,784	$ 2,422,929	$ 2,423,082	$ 16,047,319	$ 497,509	$ 6,267,744	$ 5,888,704	$ 6,267,744	$ 3,999,000
134	CUMMULATIVE INCURRED RETRO PREMIUM				$ 14,950,581	$ 15,125,364	$ 17,548,294	$ 19,971,376	$ 36,018,695	$ 36,516,204	$ 42,783,948	$ 48,672,652	$ 54,940,396	$ 58,939,396
135														
136	CUMMULATIVE INCURRED LOSSES				$ (19,627,289)	$ (20,027,289)	$ (22,527,289)	$ (25,037,289)	$ (49,237,289)	$ (50,087,289)	$ (56,587,289)	$ (62,637,289)	$ (69,137,289)	$ (73,137,289)
137	CUMMULATIVE EXPENSES		Annual Expense >	$ (100,000)	$ (100,000)	$ (200,000)	$ (300,000)	$ (400,000)	$ (500,000)	$ (600,000)	$ (700,000)	$ (800,000)	$ (900,000)	$ (1,000,000)
138	YEARLY LOSSES and EXPENSES				$ (19,727,289)	$ (20,227,289)	$ (22,827,289)	$ (25,437,289)	$ (49,737,289)	$ (50,687,289)	$ (57,287,289)	$ (63,437,289)	$ (70,037,289)	$ (74,137,289)
139														
140	RETRO BASE %	NEEDED TO	BREAKEVEN >		131.9%	133.7%	130.1%	127.4%	138.1%	138.8%	133.9%	130.3%	127.5%	126%
141														
142	COMPOSITE RETRO TERM		In Years		12.46	4.37	4.86	5.42	9.28	6.60	7.50	8.11	8.85	8.21
143														
144		INCURRED	BALANCE	10 YEARS PAID										
145	RETENTION				$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
146	STANDARD			$ 10,000,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
147	RETENTION %			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
148	REGULAR $			$ 12,000,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
149	RETRO % >			287.20%	0.00%	188.69%	200.77%	207.15%	223.47%	361.03%	375.49%	399.83%	417.32%	498.30%
150	RETRO $ >			$ 34,464,467	$ -	$ 2,264,243	$ 2,409,288	$ 2,485,799	$ 2,681,610	$ 4,332,376	$ 4,505,898	$ 4,797,904	$ 5,007,790	$ 5,979,559
151	TOTAL			$ 46,464,467	$ 1,200,000	$ 3,464,243	$ 3,609,288	$ 3,685,799	$ 3,881,610	$ 5,532,376	$ 5,705,898	$ 5,997,904	$ 6,207,790	$ 7,179,559
152														
153														
154	INSURED'S EXPERIENCE RATED LIMIT				$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000	$ 24,000,000
155														
156	LOSSES within EXPERIENCE RATED LIMIT				$ 19,627,289	$ 400,000	$ 2,500,000	$ 2,510,000	$ 24,200,000	$ 850,000	$ 6,500,000	$ 6,050,000	$ 6,500,000	$ 4,000,000
157	CUMULATIVE LOSSES within EXP. RTD LIMIT				$ 19,627,289	$ 20,027,289	$ 22,527,289	$ 25,037,289	$ 49,237,289	$ 50,087,289	$ 56,587,289	$ 62,637,289	$ 69,137,289	$ 73,137,289
158														
159	CUMULATIVE REGULAR PREMIUM				$ 1,200,000	$ 2,400,000	$ 3,600,000	$ 4,800,000	$ 6,000,000	$ 7,200,000	$ 8,400,000	$ 9,600,000	$ 10,800,000	$ 12,000,000
160	CUMULATIVE RETROSPECTIVE PREMIUM				$ -	$ 2,264,243	$ 4,673,530	$ 7,159,330	$ 9,840,940	$ 14,173,316	$ 18,679,214	$ 23,477,118	$ 28,484,908	$ 34,464,467
161	CUMULATIVE PREMIUM for EXPERIENCE RATED LOSSES				$ 1,200,000	$ 4,664,243	$ 8,273,530	$ 11,959,330	$ 15,840,940	$ 21,373,316	$ 27,079,214	$ 33,077,118	$ 39,284,908	$ 46,464,467
162														
163	CUMULATIVE LOSSES less CUMULATIVE PREMIUM				(18,427,289)	(15,363,046)	(14,253,759)	(13,077,959)	(33,396,349)	(28,713,973)	(29,508,075)	(29,560,171)	(29,852,381)	(26,672,822)
164														
165	9: PAID RETRO PREMIUMS SPANNED OVER NEXT 25 YRS.													
166	LOSS No	S.I.R. + EXP. RTD LIMIT	LOSS FACTOR	DURATION-YEARS	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
167	1.01	$ 1,127,289	4.96%	0.37		$22,163								
168	1.02	$ 2,200,000	32.66%	2.45		$391,819	$391,819	$176,115						
169	1.03	$ 2,300,000	34.49%	2.59		$413,909	$413,909	$243,204						
170	1.04	$ 18,000,000	119.70%	8.98		$1,436,352	$1,436,352	$1,436,352	$1,436,352	$1,436,352	$1,436,352	$1,436,352	$1,436,352	$1,406,827
171	2.01	$ 1,400,000	13.93%	1.06			$167,208	$7,576						

FIG. 10C

172	3.02	$ 3,500,000	51.88%	3.89				$622,553	$622,553	$622,553	$555,271			
173	4.01	$ 3,500,000	51.88%	3.89					$622,553	$622,553	$622,553	$555,271		
174	4.02	$ 1,010,000	0.41%	0.03					$153					
175	5.01	$ 25,000,000	133.30%	10.00						$1,599,600	$1,599,600	$1,599,600	$1,599,600	$1,599,600
176	5.02	$ 1,200,000	7.56%	0.57						$51,319				
177	6.01	$ 1,750,000	23.17%	1.74							$278,098	$205,387		
178	6.02	$ 1,100,000	3.96%	0.30							$14,024			
179	7.01	$ 7,500,000	83.44%	6.26								$1,001,293	$1,001,293	$1,001,293
180	8.01	$ 7,050,000	80.88%	6.07									$970,545	$970,545
181	9.01	$ 7,500,000	83.44%	6.26										$1,001,293
182	10.10	$ 5,000,000	66.66%	5.00										
183	PO RETRO PREMS	$ 89,137,289		59.44		$2,264,243	$2,409,288	$2,485,799	$2,681,610	$4,332,376	$4,505,898	$4,797,904	$5,007,790	$5,979,559
184														
185	10: RETROSPECTIVE PREMIUMS INCURRED BY YEAR													
186	LOSS No	S.I.R.+ EXP.RTD LMT	LOSS FACTOR	DURATION-YEARS	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
187	1.01	$ 1,127,289	4.96%	0.37	$22,163									
188	1.02	$ 2,200,000	32.66%	2.45	$959,753									
189	1.03	$ 2,300,000	34.49%	2.59	$1,071,021									
190	1.04	$ 18,000,000	119.70%	8.98	$12,897,643									
191	2.01	$ 1,400,000	13.93%	1.05		$174,784								
192	3.02	$ 3,500,000	51.88%	3.89			$2,422,929							
193	4.01	$ 3,500,000	51.88%	3.89				$2,422,929						
194	4.02	$ 1,010,000	0.41%	0.03				$153						
195	5.01	$ 25,000,000	133.30%	10.00					$15,996,000					
196	5.02	$ 1,200,000	7.56%	0.57					$51,319					
197	6.01	$ 1,750,000	23.17%	1.74						$483,485				
198	6.02	$ 1,100,000	3.96%	0.30						$14,024				
199	7.01	$ 7,500,000	83.44%	6.25							$6,267,744			
200	8.01	$ 7,050,000	80.88%	6.07								$5,888,704		
201	9.01	$ 7,500,000	83.44%	6.26									$6,267,744	
202	10.10	$ 5,000,000	66.65%	5.00										$3,999,000
203	RETRO INCURRED	$ 89,137,289	787.33%	59.44	$ 14,950,581	$ 174,784	$ 2,422,929	$ 2,423,082	$ 16,047,319	$ 497,509	$ 6,267,744	$ 5,888,704	$ 6,267,744	$ 3,999,000
204														

FIG. 10D

METHOD AND APPARATUS FOR INSURANCE RISK MANAGEMENT

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Provisional Application Ser. No. 60/329,915, entitled, "Method of Risk Transfer and Loss Funding," filed Oct. 16, 2001, the disclosure of which is hereby expressly incorporated herein by reference.

TECHNICAL FIELD

The present patent relates generally to computer software, and more particularly, to a computer software for managing insurance risk.

BACKGROUND ART

Insurance programs are used to protect against an uncertain need to fund a future liability of an uncertain value, for example, a need to replace a car or a home in case of its loss or a need to provide a source of income in case of disability or death, etc. To provide an insurance again such uncertain events, an insurer generally evaluates future expected losses of an insured to determine an insurance premium to be charged for such an insurance coverage. However, it is not always possible to ascertain the future expected losses of an insured entity. Often, insurers estimate future expected losses of an insured entity based on past experiences of the insured entity. In other situations, the expected future losses may also be determined based on some other indices that may be correlated to such future expected losses.

One type of insurance widely used by various entities in the United States is a commercial liability insurance. Such an insurance is generally used to compensate an a business for a wide variety of losses incurred by an insured entity, which may include losses due to natural disasters, tort claims, etc. To estimate future expected losses for this type of insurance, an insurer may look at the past history of claims against the insured entity, and use an average of the past claims as a guide for the future claims. Alternatively, an insurer may also look at similar claims by other organization in an industry to determine the expected future losses. An insurer may use a number of much more sophisticated models using a number of different criteria. In practice, a lot of times insurers decide the pricing of premiums for such liability insurance based on the market demand and supply.

In an alternate arrangement for insuring against expected future losses, an organization may also use a self-insurance model in which, the insured entity may set aside a certain reserve in a separate fund that will be used to make any payments against future expected losses incurring to that organization. One advantage of using such a self insurance program is a removal of an intermediary such as an insurance company, and hence reduction in the cost of obtaining such an insurance. Self-insurance programs are particularly popular among governmental and not-for-profit entities for several reasons. For example, such governmental entities are generally tax exempt, and hence they do not derive the benefit of tax deductible insurance payments. Secondly, some governmental organizations have large reserves on their balance sheet, or they have access to bond markets to fund an internal self-insurance fund.

In recent years, changes in law, claims handling, managed health care, computers, etc., have changed the economics of self insuring versus insuring liabilities through an insurer. Numerous public and private entities are reviewing the cost and effectiveness of their current insurance and self-insurance programs. In many states, private insurers have historically been prohibited from writing insurance coverage for public entities. Due to such restrictions, a governmental organization looking to insure itself against expected future losses may use a self insurance program either by itself or in partnership with other governmental institutions.

BRIEF DESCRIPTION OF THE DRAWINGS

The present patent is illustrated by way of examples and not limitations in the accompanying figures, in which like references indicate similar elements, and in which:

FIG. **1** is an exemplary illustration of a worksheet used in determination of a standard premium of an insured entity;

FIG. **2** is an exemplary illustration of a worksheet used in determination of a regular premium of an insured entity;

FIG. **3** is an exemplary illustration of a worksheet used in determination of an excess premium of an insured entity;

FIGS. **4**A and **4**B are exemplary illustrations of worksheets used in determination of excess limits for an insured entity;

FIG. **5** is an exemplary illustration of a worksheet specifying an interactive model used to determine a retrospective premium of an insured entity;

FIG. **6** shows an exemplary flowchart to use a retention trust program in an enterprise risk model;

FIG. **7** shows a worksheet highlighting financial structures of two different methods of arranging a retention trust program;

FIG. **8** shows a 10 year summary comparison of retention trust and a banking excess program for a single insured entity;

FIGS. **9**A and **9**B shows a comparison matrix of various risk management methods described in here; and

FIGS. **10**A-**10**D shows results of a simulation of the risk management methods described in here using a retention trust approach.

DESCRIPTION OF THE EMBODIMENTS

Although the following text sets forth a detailed description of numerous different embodiments of the invention, it should be understood that the legal scope of the invention is defined by the words of the claims set forth at the end of this patent. The detailed description is to be construed as exemplary only and does not describe every possible embodiment of the invention since describing every possible embodiment would be impractical, if not impossible. Numerous alternative embodiments could be implemented, using either current technology or technology developed after the filing date of this patent, which would still fall within the scope of the claims defining the invention.

It should also be understood that, unless a term is expressly defined in this patent using the sentence "As used herein, the term '______' is hereby defined to mean . . . " or a similar sentence, there is no intent to limit the meaning of that term, either expressly or by implication, beyond its plain or ordinary meaning, and such term should not be interpreted to be limited in scope based on any statement made in any section of this patent (other than the language of the claims). To the extent that any term recited in the claims at the end of this patent is referred to in this patent in a manner consistent with a single meaning, that is done for sake of clarity only so as to not confuse the reader, and it is not intended that such claim term by limited, by implication or otherwise, to that single meaning. Finally, unless a claim element is defined by reciting the word "means" and a function without the recital of any structure, it is not intended that the scope of any claim element be interpreted based on the application of 35 U.S.C. § 112, sixth paragraph.

While in the following, a method of managing an insurance risk of an entity is described using a number of worksheets, it can be understood that an alternate tool can be used to implement the described method. For example, in an alternate implementation, the method described below can be implemented using a set of graphical user interface (GUI) templates, where each of the template may interact with one or more input and output mechanism, such as a computer keyboard, calculator keyboard, etc., and where one or more input can be provided to the template, and where the template may show the results of a routine attached to such a template, on a display device such as a monitor, etc. The worksheets described in the following figures can be implemented using any of the standard worksheet programs such as Excel, etc.

FIG. **1** is an exemplary illustration of a worksheet **10** used to determine a standard premium of an insured entity. A standard premium of an insured entity is a premium based on a level of revenues of the insured entity. The exemplary illustration of FIG. **1** illustrates a calculation of a standard premium that is revenue based, such that it is based on a reasonable approximation of an insured's exposure to losses in relation to its size. It is assumed that an insured's capacity to bear loss and risk exposure increases with size but that this relationship is not linear i.e., an insured's exposure to risk that can be covered by an insurance premium is exponentially related to the such an insurance premium and that such risk is linearly related to its revenues. Therefore, if the insurance premium of an insured is increased by two-fold, the revenue size, and hence the risk exposure covered by such an increase in the insurance premium will be four-fold. Such a relation between standard premium and the revenues of the insured can be depicted by an equation 1 given below.

$$\text{std\_prem}=a1^{*}\sqrt{\text{revenues}} \tag{1}$$

where a1 is an limit to premium multiplier, and std_prem is the standard premium. The standard premium is a reference point for determining a regular premium for the inured entity. The exemplary worksheet in FIG. **1** shows this relation between the revenue of an insured entity and the standard premium of the insured entity for a minor insured entity in column **12** and for a major insured entity in column **14**. As shown in column **12** the revenues of the minor insured entity are $900,000,000 while the revenues of the major insured entity are $3,600,000,000, as shown in row **16**. As shown in row **17**, the square roots of these revenues are $30,000 and $60,000 respectively. The limit to premium multiplier a1 used in the exemplary worksheet of FIG. **1** is 20, as shown in row **18**. However, it will be clear to one of ordinary skill in the art that in an alternate implementation of the present invention, the limit to premium multiplier a1 may be any reasonable number other than 20. Multiplying the square roots of the revenues from row **17** with the limit to premium multiplier a1 of row **18**, the standard premium of the minor entity is obtained to be equal to $600,000 and the standard premium of the major insured entity is obtained to be equal to $1,200,000, as shown in row **19**.

As can be seen from this exemplary illustration, in the method used to determine a standard premium, as described in FIG. **1**, when the revenues of the insured entity increases four-fold, the standard premium required to cover the loss of risk increases by two-fold. Please note that while the method of calculating standard premium as depicted in FIG. **1** and illustrated by Equation 1 relates the standard premium of the insured entity to the revenues on a second degree of exponential relation, in an alternate implementation, the relation may be based on an alternate degree of exponential relation.

It can be seen that the relation between the revenues and the standard premium, as depicted in FIG. **1** can also be alternatively used in reverse to see what level of revenues will a given standard premium support. Alternatively, the revenues of an insured entity may be weighted by a weighting factor greater to account for risk level related to such revenues, where the risk weighting factor is above 1 for high-risk revenues such as hazardous material transportation or where the risk factor is below 1 for low-risk level related to such revenues such as city school, etc. It is important to note that the method of calculating a standard premium of an insured entity, as depicted in FIG. **1** allows one to calculate a standard premium which is based on only the revenues of such an insured entity.

FIG. **2** is an exemplary illustration of a worksheet **30** used to determine a regular premium of an insured entity. A regular premium of an insured entity is the standard premium of the insured entity adjusted for a self insured retention (SIR) of the insured entity and a retention debit or credit (hereinafter referred to as "retentions debit"). The exemplary illustration of FIG. **2** illustrates calculation of a regular premium of the insured entity based on its standard premium as calculated in FIG. **1** and the retention debit as given by an equation 2 given below:

$$\text{retention\_debit}=\frac{\log(SIR/a2)}{\log(\text{loss\_limit}/a2)} \tag{2}$$

where retention_debit is the retention debit of the insured entity,

loss_limit is a loss limit acceptable to the insured entity (a loss limit is also known as a policy limit). Here a2 is a multiplier used to adjust the value of the SIR into millions, i.e., a2 has a value of $1,000,000.

The regular premium of insured entity is calculated using an equation 3 given below:

$$\text{reg\_prem}=\text{std\_prem}^{*}(1-\text{retention\_debit}) \tag{3}$$

where reg_prem is the regular premium of the insured entity and the std_prem is the standard premium of the insured entity as calculated by equation 1 above. The regular premium of the insured entity determines the insured entity's experience rated limit, which is described in further detail below. The regular premium of the insured entity also works as a reference point for calculating a retrospective premium for experience rated losses of the insured entity in excess of its SIR but within its experience rated limit.

The exemplary worksheet in FIG. **2** shows this relation between the standard premium, the SIR, the retention debit and the regular premium of the insured entity. In FIG. **2**, columns **32**, **34** and **36** shows a determination of the regular premium for a minor insured entity for various levels of revenues, while columns **38** and **40** shows a determination of the regular premium for a major insured entity for various levels of revenues. Row **42** lists the revenues for various insured entities in various columns, row **44** lists the SIR for various insured entities, row **46** lists logarithms (hereinafter referred to as log) of various SIRs listed in row **44** adjusted by a2 to convert them in millions. As shown in row **48** of FIG. **2**, the loss limits for all the insured entities are supposed to be at $25,000,000 level, however, it is understood that a user can select a different level of loss limit for the insured entities. Row **50** shows a log of loss limits from row **48** with the loss limits adjusted in millions. using the log of SIR from row **46** and dividing it by the log of loss limit from row **48**, the spreadsheet finds a retention debit for the insured organization as shown in row **52**. Row **54** lists the standard premiums of the insured entities based on the revenues in row **42** and calculated using the equation 1 described above when the minor entity in insured. Based on the standard premiums listed in row **54**, the regular premiums for the insured entities, when the minor entity is insured, are listed in row **56**. Similarly, row **58** lists the standard premiums of the insured entities based on the revenues in row **42** and calculated using the equation 1 described above when the major entity in insured. Based on the standard premiums listed in row **58**, the regular premiums for the insured entities, when the major entity is insured, are listed in row **60**.

The worksheet shown in FIG. **2** allows a user to calculate regular premiums for various insured entities by inputting various values of revenues, loss limits and SIRs for such an insured entity. When an insurer is dealing with more than one insured entities in a risk management pool and only one of them is to be insured, the worksheet illustrated in FIG. **2** allows an insurer to adjust the regular premiums based on which of the insured entity needs to be insured.

For example looking at column **32** in FIG. **2**, for a revenue level of $900,000,000, the regular premium for the insured entity Minor 1 is $858,406, as seen in row **56**, when a minor entity with a revenue of $900,000,000 is insured. While the regular premium is $1,716,812, as seen in row **60**, when the major entity with a revenue of $3,600,000,000 is insured. It should be noted in row **52** that when the SIR of the insured entity is less than $1,000,000, a retention debit (depicted by the negative values in column **32** and **34**) is applied to the standard premium of the insured entity, whereas when the SIR is greater than $1,000,000, a retention credit (depicted by the positive values in column **38** and **40**) is applied to the standard premium of the insured entity. At an SIR of $1,000,000, there is no retention debit or credit (as depicted by a value of 0 in column **36**). This allows an insured entity to control its risk level by selecting a higher or lower level of SIR. The method used to calculate the regular premium results in higher regular premium for a lower level of SIR due to the application of retention debit, and a lower level of regular premium due to the application of a retention credit.

FIG. **3** is an exemplary illustration of a worksheet **70** used in determination of an excess premium of an insured entity. An excess premium is the amount of premium an insured entity may have to pay to be insured in addition to its SIR and an experience rated limit (ERL) of the insured entity. Experience rating of an insured entity involves using an insured's own loss experience to estimate expected future losses of the organization. A number of different methods may be employed to estimate the experience rated limit of an insured entity. In the exemplary embodiment illustrated in FIG. **3**, the experience rated limit is estimated based on the revenue of the insured entity. Since the standard premium of the insured entity is calculated using the revenues of the insured entity, in the exemplary illustration of FIG. **3**, the experience rated limit is calculated using the standard premium of the insured entity using an equation 4 given below:

$$\text{exp\_rated\_limit}=a1*\text{reg\_prem} \tag{4}$$

where exp_rated_limit is the experience rated limit of the insured entity.

An excess limit factor calculated based on the experience rated limit, the loss limit and the SIR of the insured entity indicates by what amount the regular premium of the insured entity needs to be adjusted to calculate an excess premium. The excess limit factor is calculated by using an equation 5 given below:

$$\text{excess\_limit\_factor}=\left(\frac{\log(\text{loss\_limit}/a2)}{\log(\text{exp\_rated\_limit}/a2)}-a3\right) \tag{5}$$

Where excess_limit_factor is the excess limit factor and a3 is a constant with an approximate value of 1. The exemplary worksheet **70** of FIG. **3** shows the relation between the regular premium, the experience rated limit and the loss limit for a major insured entity. The column **71** of FIG. **3** contains various parameters for a major insured entity. Row **72** specified the SIR that the major insured entity is willing to accept to be $1,000,000, row **73** specifies the regular premium of the major insured entity as $ 1,000,000 (as calculated above in FIG. **2** in row **60** and column **40**). Row **74** specifies that the loss limit acceptable to the major insured entity in this case is $25,000,000, row **75** shows the log of the loss limit, as inputted in row **74** and converted into millions, to be equal to 1.3979 and row **76** shows the ERL of the major insured entity, as calculated by equation 4. In the case of the major insured entity described in FIG. **3**, the sum of the SIR and the ERL is equal to $13,000,000 as shown in row **77**, subtracting this sum of the SIR and the ERL from the loss limit, the excess limit is obtained to be equal to $12,000,000, as shown in row **78**. Row **79** shows the log of the sum of the SIR and the ERL converted into millions to be equal to 1.1139. The ratio of the log of the loss limit and the log of the sum of the SIR and the ERL as given in row **80** is 125.49%. Using the equation 5 above the Excess premium is calculated to be equal to $152,968, as shown in row **81**.

FIGS. **4**A and **4**B are an exemplary illustration of worksheets **100** and **120** used in determination of excess limits for a minor insured entity and a major insured entity for various values of SIR. Columns **101-105** of FIG. **4**A shows the excess limits of five entities, three minor entities (Minor **1**, Minor **2** and Minor **3**) and two major entities (Major **1** and Major **2**), where one of the minor company is insured. Row **110** of FIG. **4**A shows various excess limits for various values of SIR as given in row **112**. Similarly, Columns **121-125** of FIG. **4**B shows the excess limits of five entities, three minor entities (Minor **1**, Minor **2** and Minor **3**) and two major entities (Major **1** and Major **2**), where one of the major company is insured. Row **130** of FIG. **4**B shows various excess limits for various values of SIR as given in row **132**.

As can be seen in row **134** of FIG. **4**B, the ERL exceeds the loss limit for Minor **1** and Minor **2**. To avoid such a situation, in the worksheet used to calculate the total premium of an insured entity (as described in FIG. **5** below), the ERL is limited to the loss limit. This is further discussed below with reference to FIG. **5**.

FIG. **5** is an exemplary illustration of a worksheet **200** specifying an interactive model that allows a user to control the SIR and a total premium amount for an insured entity. The model illustrated by FIG. **5** also allows a user to control various retrospective premium factors used in calculating a retrospective premium amount. A user is allowed to input a value for a retrospective base percentage, a retrospective term and a retrospective calibrator. Each of these retrospective premium factors provides a user of the model described in FIG. **5** a different tool for controlling a premium amount used to cover such a retrospective loss. Retrospective premiums are normally based on hundred percentage of the regular premiums of insured entities. The retrospective base percentage allows a user to define what percentage of the regular premium is used to calculate a retrospective premium used to cover the retrospective loss. The retrospective term allows a user to specify how many years a retrospective premium will be applied to pay for the retrospective loss. While the retrospective calibrator allows a user to limit the retrospective premium as a percentage of the regular premium, i.e., the maximum increase in the regular premium that the user would allow to cover the retrospective loss.

In the worksheet **200** columns **202-208** shows the calculation of total premiums for four different entities respectively Minor **1**, Minor **2**, Major **1** and Major **2**. A user can input the revenues of these entities in row **210** and the SIR acceptable for these entities in row **212**. Row **214** shows the standard premiums for these entities calculated using the equation 1 above. In row **216**, a user can input the maximum loss limit acceptable for these entities. While in FIG. **5**, the loss limits are at $25,000,000 for each of the four insured entities, an alternate value can also be input in row **216**.

Row **218** shows a retention credit calculated for each of the entities by using the following equation 6:

$$\text{retention\_credit} = -\frac{\log(SIR/a2)}{\log(\text{loss\_limit}/a2)} \tag{6}$$

where retention_credit is the retention credit. Row **220** shows a limit factor which is calculated using the following equation 7:

$$\text{limit\_factor}=1+\text{retention\_credit} \tag{7}$$

where limit_factor is the limit factor which is used to calculate the regular premium of the insured entity using the following equation 8:

$$\text{reg\_prem=std\_prem*retention\_credit}). \tag{8}$$

Please note that the equation 8 is similar to the equation 2 above. The regular premiums of various insured entities are listed in row 222 in FIG. **5**. As mentioned previously in FIG. **4**, it is possible to come across a situation where a sum of the SIR and the ERL of an insured entity may be higher than its loss limit. To avoid such situation, in FIG. **5** an adjusted sum of the SIR and the ERL of various entities is calculated using the following equation 9:

$$\begin{aligned}&\text{if (Round(reg\_prem*}a1,-6)\text{+SIR<loss\_limit) then}\\&\quad\text{adj\_SIR\_ERL=Round(reg\_prem*}a1,-6)\text{+SIR;}\\&\quad\text{else adj\_SIR\_ERL=loss\_limit}\end{aligned} \tag{9}$$

where adj_SIR_ERL is the adjusted value of the sum of the SIR and the ERL and it is listed in row **22** of FIG. **5**.

An Adjusted ERL of the insured entities, shown in row **224** is calculated simply by subtracting the SIR from the adjusted sum of the SIR and the ERL **226**. Please note that the adjusted ERL of the entities as listed in FIG. **5** is different than the regular ERL listed in FIG. **3** and FIGS. **4**A and **4**B. Similarly, an adjusted excess limit is also calculated by subtracting the adjusted sum of the SIR and the ERL from the loss limit. The adjusted excess limits for various entities are shown in row **228** of FIG. **5**. Again note that the adjusted excess limits as shown in FIG. **5** are different than the regular excess limits shown in FIG. **3** and FIGS. **4**A and **4**B.

Rows **230-234** allows a user to input the retrospective factors as discussed above, namely the retrospective base percentage, the retrospective term and the retrospective calibrator. Similarly a user can provide a retrospective loss in row **236**. Such retrospective loss along with other retrospective factors is used to calculate a retrospective premium which is added to the regular premium of the insured entities. Various steps used in the calculation of the retrospective premium are listed below.

An experience rated loss is calculated based on the value of the retrospective loss and the adjusted value of the sum of the SIR and the ERL using the following equation 10:

$$\begin{aligned}&\text{If(retrospective\_loss>adj\_SIR\_ERL) then}\\&\quad\text{exp\_rated\_loss=adj\_SIR\_ERL; else}\\&\quad\text{exp\_rated\_loss=retrospective\_loss}\end{aligned} \tag{10}$$

where retrospective_loss is the retrospective loss specified by a user, and exp_rated_loss is the experience rated loss, the values of such experience rated loss for various insured entities for given values of retrospective losses are listed in row **238**.

Next a value of a base retrospective factor is calculated based on the values of the experience rated loss and the adjusted sum of the SIR and the ERL, using the following equation 11:

$$\text{base\_retro\_factor} = \frac{\log(\text{exp\_rated\_loss}/a2)}{\log(\text{adj\_SIR\_ERL}/a2)} \tag{11}$$

where the base_retro_factor is a base retrospective factor, the values of such base retrospective factor for various entities are shown in row **240** of FIG. **5**.

Row **242** of FIG. **5** shows values of a loss factor which is calculated using the following equation 12:

$$\text{loss\_factor=base\_retro\_factor+retention\_credit} \tag{12}$$

where loss_factor is the loss factor for various insured entities.

Row **244** of FIG. **5** shows values of a retrospective premium factor calculated using the following equation 13:

$$\text{retro\_prem\_factor} = \text{retro\_calibrator}*\frac{(\text{loss\_factor})}{(\text{limit\_factor})} \tag{13}$$

where retro_prem_factor is the retrospective premium factor. Once the retrospective premium factor of various entities is calculated, the retrospective premium of these entities may be determined using the following equation 14:

$$\text{retro\_prem=reg\_prem*retro\_base\_percent*retro\_prem\_factor} \tag{14}$$

where the retro_prem is the retrospective premium of the insured entity and retro_base_percent is the retrospective base percentage provided by a user for the insured entity. The retrospective premiums for various entities are listed in row **246** of FIG. **5**. Row **248** of FIG. **5** simply shows the sum of the retrospective premium and the regular premium of the insured entities.

Finally, the adjusted excess premium for the insured entities, based on the sum of the retrospective premium and the regular premium is shown in row **250** of FIG. **5** and it is calculated using the following equation 15:

$$\text{adj\_excess\_prem} = (\text{reg\_prem}+\text{retro\_prem})*\left(\frac{\log(\text{loss\_limit}/a2)}{\log(\text{adj\_SIR\_ERL}/a2)}-1\right) \tag{15}$$

where the adj_excess_prem is the adjusted excess premium. A sum of the regular premium, the retrospective premium and the adjusted excess premium is the total premium for the insured entity, which is listed in row **252** of FIG. **5**.

The methodology described in FIG. **5** allows a user to control the loss limit and the SIR while including the retrospective premium to account for any retrospective losses. This is a powerful tool that can be used to manage the excess risk of an insured entity based on one or more retrospective losses incurred by the insured entity. The methodology described in FIGS. **1-5** to calculate insurance premium can be used in a number of different industry structures, some of which are described in further detail in FIG. **6** below. Even though only two such structures are described here, it should be understood that many more potential structures can be arranged.

FIG. **6** shows a retention trust approach, also known as the revolving fund approach of risk management. In this approach of risk management, an insured entity establishes a revolving loss fund with a balance equal to or greater than the sum of its SIR and ERL. This arrangement is particularly well suited for governments, hospitals, non-profit organizations, etc. In this arrangement, the insured entity should generally have ample investment funds or easy access to capital market for funds to fund the revolving loss fund. Alternatively the retention trust can take the form of a trust, a captive insurer, a rent-a-captive, a protected cell or a segregated cell type of form.

FIG. **6** shows a flowchart **300** to use the retention trust program in an enterprise risk model in which all the risk is retained by an enterprise managing the retention trust, and no part of risk is transferred to a third party. In such an arrangement the insured corporation acts as a sponsoring entity for the retention trust, for example, by establishing a parent-subsidiary relation between the insured entity and the retention trust. At block **302**,

The advantage of using an enterprise risk model is that it allows the insured entity to manage, control and budget losses much more effectively than alternate risk management tools available today. Under this arrangement, the insured is in charge of determining the expenses related to insurance risk management. At the same time the retention trust arrangement using enterprise risk model is easy to set up and to make contributions to the retention trust. Since the insured company is a parent of the retention trust, the insured company is also able to manage the retention trusts assets.

Now turning to FIG. **6**, at block **302**, the insured entity establishes the retention trust, which can be in any one of the forms discussed above, i.e., as a trust, a captive insurer, a rent-a-captive, etc. At block **304**, the insured entity sets up a parent-subsidiary relationship with the retention trust. At block **306**, the insured entity selects values of a number of control parameters such as the SIR, the retrospective base percent, etc. Based on the values selected at block **306**, using the equations 1-15 as described above, at block **308** the insured entity calculates various insurance premiums necessary to manage the insurance risks, such as the regular premium, the excess premium, etc. At block **310** the insured entity makes contributions to the retention trust in the amount of the total premium calculated at block **308**. The insured entity should continue making periodic insurance premium payments to the retention trust.

At block **312**, the insured entity monitors any losses incurring to the insured entity that may qualify for a reimbursement from the retention trust. If such a loss occurs, at block **314**, the insured entity calculated various retrospective insurance premiums using one or more of the equations 1-15. At block **316**, the insured entity will pay a retrospective premium to the retention trust. In an enterprise risk model, generally the aggregate limit up to which the retention trust will reimburse the insured entity's losses is the loss limit, or the policy limit. After detection of losses, the insured entity will reevaluate various insurance premiums at block **308** and than continue making periodic insurance premium payments based on new insurance premiums.

If no losses are detected at block **312**, at block **314**, the insured entity considers whether it needs to reassess the insurance premiums. Generally, such an reassessment should be done at least annually based on new information about revenues, etc. However, alternate reassessment arrangement which is done periodically, etc., may also be set up. If at block **318**, the insured entity decides that it needs to do the reassessment, it will recalculate the premiums based on new information at block **306**. If no reassessment is necessary, at block **320** the insured entity considers whether it wants to continue the retention trust arrangement. If it decides to continue the relation, it continues making periodic contributions to the retention trust, however, if it is decided that it wants to end the retention trust arrangement, at block **322**, the insured entity will dissolve the retention trust.

As previously mentioned, the enterprise risk model is only one type of retention trust arrangement, among many possible retention trust arrangements. Another example of an alternate retention trust arrangement is one using a risk transfer model, in which some risk of loss is transferred from the insured to a third party. In order to minimize a moral hazard on the part of the insured entity, a risk transfer to a third party generally requires that losses be fortuitous or "neither expected from the standpoint of the insured."

The premium calculation mechanics of both the enterprise risk model and the risk transfer model are similar in all respect except with respect to the excess limits, where the enterprise risk model results in excess limits that are unlikely or unnecessary as the losses in the enterprise risk model are one hundred percent experience rated.

FIG. **7** highlights the financial structure of the two different methods of arranging a retention trust program. In FIG. **7** the loss factors have been limited to a maximum of fifty percent for each loss by the retro calibrator.

The Retention trust revolving loss fund models permit the Insured a self directed self funded loss retention program that permits the Insured to transfer virtually any loss within its Experience Rated Limits to its Trust and be able to manage, control and budget loss or expense within its Experience Rated Limits.

The principal disadvantages of Retention Trust models are:

1. Loss Limits are pre-funded to the maximum Experience Rated Limit. In effect, the Insured is prepaying its insurance limit.
2. Trust balances could become deficient if the Trust were to sustain significant losses within a short period of time before the Trust was able to recoup its losses through Regular and Retro premium.
3. Trust balances could become excessive. As the trust is pre-funded for its ERL and most losses are partial and not total, it is quite likely that the Trust could become over-funded if not properly managed by the insured.

Offsetting these considerations.

1. Losses incurred by the Insured or on behalf of the insured should be the Insured's decision as to what funding alternatives are used.
2. The insured can manage and control its trust balances
   A. Income: Although additional retrospective premium is receivable by the trust beginning in the year following the insured's losses, the insured can increase/

decrease the revenue to its trust by changing its retention or the retrospective factors.

B. Assets: In the event the insured's losses result in a significant and immediate loss to its trust, the insured could either advance funds to its trust or authorize its trust to borrow against its premiums receivable.

(A.1) ENTERPRISE RISK MODEL

(A.2) RISK TRANSFER MODEL

(A.3) INTEGRATED RISK TRANSFER MODEL

CONTROL OF RISK

The retrospective base (percentage of regular premium to which retrospective premium factors are applied) is one of the most powerful risk control tools available particularly when used in conjunction with the retro indicator which indicates the RETRO BASE needed to breakeven with future premiums with past incurred losses and current expenses.

Another arrangement between an insurer and an insured is referred to as an investment contract (also known as a banking excess program) is described as follows.

An insurer can enter into a profitable risk controlled investment contract and an Insured can secure enterprise risk coverage by entering into a "Banking Excess" agreement with a commercial insurer.

The principal features of this form of investment contract are:

1. Insured enters into a long term contract with the insurer in which the insured agrees to pay its regular premium and any retrospective premium for its incurred losses to the insurer as well as any excess premium for limits in excess of its ERL.
2. Insurer agrees to indemnify the insured for subject losses in accordance with its policy terms and conditions subject to an "all years aggregate" limitation in the event of contract cancellation by the insured as well as forfeiture of any premium deposit.
3. Insured's capital requirement is either significantly reduced compared to the retention trust models or even eliminated but the tradeoff for the insured is higher expenses or lower investment income or both.
4. Insurer has an opportunity to earn both an underwriting profit and investment income under a long term investment contract in which the risk element is largely under the control of the insurer by prospective underwriting such as revenue weighting and management of all of the RETRO Factors including the retrospective base, retrospective term and retrospective calibrator for the maximum percentage premium increase for a limit loss.
5. The high profit potential and low risk prospects of such an investment contract make this an exceptionally attractive candidate for an insurer's risk capital and an early prospect for commercial development.

A comparison of a Banking Excess Model with a Retention Trust Model based on a 10 year simulation indicates:

1st: The insured's loss experience is exceptionally adverse and is used solely for illustration purposes.

2nd: An insured with a loss experience as adverse as illustrated would have limited options in maintaining a conventional insurance program and cancellation in the face of significant and recurring underwriting deficits would be virtually inevitable.

3rd: The "INEXCHANGE®" model's retrospective indicator provides a basis for adjusting the retrospective base to assure profitable underwriting and is incorporated in the following summary comparison in FIG. **8**, which uses the retrospective indicator for year 1.0 to adjust the retrospective base.

FIG. **8** shows a 10 year summary comparison of retention trust and a banking excess program for a single insured entity.

FIGS. **9**A and **9**B shows a comparison matrix of various risk management methods described above.

FIGS. **10**A-**10**D shows results of a simulation of the risk management methods described above using a retention trust approach.

In the foregoing specification the present patent has been described with reference to specific embodiments. However, one of ordinary skill in the art will appreciate that various modifications and changes can be made to these embodiments without departing from the scope of the present patent as set forth in the claims below. Accordingly, the specification and figures are to be regarded in an illustrative rather than in a restrictive sense, and all such modifications are intended to be included within the scope of the present patent.

What is claimed is:

1. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of calculating an insurance premium for an organization, the method comprising:

receiving a set of insurance information from a user including a revenue of the organization, a self insured retention (SIR) of the organization, and a loss limit acceptable to the organization;

determining a standard premium based on the revenue of the organization;

determining a regular premium based on the standard premium and the SIR of the organization;

determining an experience rated limit based on the regular premium; and

determining an excess premium based on the loss limit acceptable to the organization, the regular premium and the SIR of the organization;

wherein determining the standard premium includes:

receiving a revenue weighting factor from the user;

multiplying an actual revenue of the organization by the revenue weighting factor to get a weighted revenue of the organization; and

determining the standard premium by using the equation:

$$\text{std\_prem}=a1*\sqrt{\text{weighted\_revenue}}$$

where std_prem is the standard premium,

a1 is a first constant representing a limit to premium multiplier, and

weighted_revenue is the weighted revenue of the organization.

2. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of as described in claim **1**, wherein the limit to premium multiplier has an approximate value of 20.

3. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of calculating an insurance premium for an organization, the method comprising:

receiving a set of insurance information from a user including a revenue of the organization, a self insured retention (SIR) of the organization, and a loss limit acceptable to the organization;

determining a standard premium based on the revenue of the organization;

determining a regular premium based on the standard premium and the SIR of the organization;

determining an experience rated limit based on the regular premium; and determining an excess premium based on the loss limit acceptable to the organization, the regular premium and the SIR of the organization,

wherein the standard premium and the revenue of the organization are related by the equation:

$$\text{std\_prem}=a1*\sqrt{\text{revenue}}$$

where std_prem is the standard premium, and

revenue is the revenue of the organization;

the regular premium and the standard premium are related by the equation:

$$\text{reg\_prem}\equiv\text{std\_prem}*\left(\frac{(1-\log(SIR/a2))}{\log(\text{loss\_limit}/a2)}\right)$$

where reg_prem is the regular premium,

loss_limit is the loss limit acceptable to the organization, and

a2 is a second constant with a value of 1,000,000 used to convert a value in dollars into a value in millions of dollars;

the experience rated limit and the regular premium are related by the equation:

$$\text{exp\_rated\_limit}=a1*\text{reg\_prem}$$

where exp_rated_limit is the experience rated limit; and

the excess premium, the regular premium, the loss limit and the SIR are related by the equation:

$$\text{ex\_prem}\equiv(\text{reg\_prem})*\left(\frac{\log(\text{loss\_limit}/a2)}{\log(\text{exp\_rated\_limit}/a2)}-a3\right)$$

where ex_prem is the excess premium, and

a3 is a third constant with a value of 1.

4. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of as described in claim **3**, further including determining a necessary revenue for an organization to generate a targeted standard premium, where the necessary revenue and the targeted standard premium are related by the equation:

$$\text{necessary\_revenue}=(\text{target\_std\_prem}^2/a4)$$

where necessary_revenue is the necessary revenue for the organization,

target_std_premium is the targeted standard premium, and

a 4 is a fourth constant with an approximate value of 400.

5. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **3**, further comprising:

determining an excess limit, where the excess limit, the experience rated limit and the loss limit are related by the equation:

$$\text{excess\_limit}=\text{loss\_limit}-(\text{SIR}+\text{exp\_rated\_limit})$$

where excess_limit is the excess limit.

6. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **3**, further comprising:

receiving a first retrospective loss for the organization;

receiving a set of retrospective factors to determine a first retrospective premium based at least in part on the first retrospective loss, said retrospective factors including a retrospective base percentage specifying a percentage of the regular premium used to calculate the first retrospective premium, a retrospective term specifying a number of years that the first retrospective premium is to be applied, and a retrospective calibrator specifying a maximum increase in the regular premium due to the first retrospective premium; and

determining the first retrospective premium.

7. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **6** wherein, determining the first retrospective premium comprising:

(1) determining a retention debit, where the retention debit, the loss limit and the SIR are related by the equation:

$$\text{retention\_debit}=\frac{\log(SIR/a2)}{\log(\text{loss\_limit}/a2)}$$

where retention_debit is the retention debit;

(2) determining a limit factor, where the limit factor and the retention debit are related by the equation:

$$\text{limit\_factor}=a3-\text{retention\_debit}$$

where limit_factor is the limit factor;

(3) determining an adjusted sum of the SIR and the experience rated limit (adj_SIR_ERL), where if the sum of the experience rated limit and the SIR is less than the loss limit, the adj_SIR_ERL equals the sum of the experience rated limit and the SIR, otherwise the maximum loss limit equals the loss limit;

(4) determining an experience rated loss, where if the first retrospective loss is greater than the adj_SIR_ERL, the experience rated loss equals the adj_SIR_ERL, otherwise the experience rated loss equals the first retrospective loss;

(5) determining a base retrospective factor, where the base retrospective factor, the experience rated loss and the maximum loss limit are related by the equation:

$$\text{base\_retro\_factor}=\frac{\log(\text{exp\_rated\_loss}/a2)}{\log(\text{adj\_SIR\_ERL}/a2)}$$

where base_retro_factor is the base retrospective factor, and

exp_rated_loss is the experience rated loss;

(6) determining a loss factor, where the loss factor, the base retrospective factor and the retention debit are related by:

$$\text{loss\_factor}=\text{base\_retro\_factor}-\text{retention\_debit}$$

where loss_factor is the loss factor;

(7) determining a retrospective premium factor, where the retrospective premium factor, the retrospective calibrator, the loss factor and the limit factor are related by the equation:

$$\text{retro\_prem\_factor}=(\text{retro\_calibrator})*\left(\frac{\text{loss\_factor}}{\text{limit\_factor}}\right)$$

where retro_prem_factor is the retrospective premium factor,

retro_calibrator is the retrospective calibrator; and

(8) determining the retrospective premium, where the retrospective premium, the regular premium and the retrospective base percentage are related by the equation:

$$\text{retro\_premium}=\text{reg\_prem}*\text{retro\_base\_percent}*\text{retro\_prem\_factor}$$

where retro_prem is the retrospective premium, and retro_base_percent is the retrospective base percentage.

8. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **7** further comprising:

determining an adjusted excess premium, where the adjusted excess premium, the regular premium, the retroactive premium, the loss limit and the adj_SIR_ERL are related by the following relation:

$$\text{adj\_excess\_prem} = (\text{reg\_prem} + \text{retro\_premium}) * \left(\frac{\log(\text{loss\_limit}/a2)}{\log(\text{adj\_SIR\_ERL}/a2)} - a3\right)$$

where, adj_excess_prem is the adjusted excess premium.

9. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **8** further comprising:

determining a total premium of an organization as a sum of the regular premium, the adjusted excess premium and the retrospective premium.

10. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **9** further including:

setting up a retention trust with a balance equal to or greater than the sum of the experience rated limit and the SIR;

the retention trust providing a first type of insurance to the organization; and

the organization making periodic payments to the retention trust in an amount equal to the total premium.

11. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **10**, wherein the retention trust is setup in a corporate form similar to one of a trust, a captive insurer, a rent-a-captive insurer, a protected cell insurer and a segregated cell insurer.

12. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **11**, wherein the retention trust is set up as a controlled entity that is financially not consolidated with the organization.

13. A computer-readable medium including computer-executable instructions stored thereon for causing a computer to perform a method of claim **9**, wherein the organization enters into a contract to pay the total insurance premium to a third party insurer and the third party insurer indemnifies the organization for a plurality of losses for a first period as specified in the contract.

14. A system for determining an insurance premium of an organization employing a processor, a memory, a display, and an input mechanism, the system comprising a program stored on the memory and executable on the processor to:

receive a set of insurance information from a user including a revenue of the organization, a self insured retention (SIR) of the organization, and a loss limit acceptable to the organization;

determine a standard premium based on the revenue of the organization;

determine a regular premium based on the standard premium and the SIR of the organization;

determine an experience rated limit based on the regular premium; and

determine an excess premium based on the loss limit acceptable to the organization, the regular premium and the SIR of the organization;

wherein to determine the standard premium, the program stored on the memory is executable by the processor to:

receive a revenue weighting factor from the user;

multiply an actual revenue of the organization by the revenue weighting factor to get a weighted revenue of the organization; and

determine the standard premium by using the equation:

$$\text{std\_prem}=a1*\sqrt{\text{weighted\_revenue}}$$

where std_prem is the standard premium,

a1 is a first constant representing a limit to premium multiplier, and

weighted_revenue is the weighted revenue of the organization.

15. A system for determining an insurance premium of an organization comprising:

a processor;

a memory;

an input mechanism adapted to receive a set of insurance information from a user including a revenue of the organization, a self insured retention (SIR) of the organization, and a loss limit acceptable to the organization;

a computer program stored on the memory and adapted to execute on the processor to determine a standard premium based on the revenue of the organization, determine a regular premium based on the standard premium and the SIR of the organization, determine an experience rated limit based on the regular premium, to determine an excess premium based on the loss limit acceptable to the organization, the regular premium and the SIR of the organization, wherein to determine the standard premium, the program stored on the memory is executable by the processor to:

receive a revenue weighting factor from the user; to multiply an actual revenue of the organization by the revenue weighting factor to get a weighted revenue of the organization; and to determine the standard premium by using the equation:

$$\text{std\_prem}=a1*\sqrt{\text{weighted\_revenue}}$$

where std_prem is the standard premium,

a1 is a first constant representing a limit to premium multiplier, and

weighted_revenue is the weighted revenue of the organization; and

an output device adapted to output the standard premium and the excess premium to the user on a user readable medium.

16. A computer program embodied on at least one computer readable medium including computer-executable instructions comprising:

first software for receiving a set of insurance information from a user including a revenue of the organization, a self insured retention (SIR) of the organization, and a loss limit acceptable to the organization;

second software for determining a standard premium based on the revenue of the organization;

third software for determining a regular premium based on the standard premium and the SIR of the organization;

fourth software for determining an experience rated limit based on the regular premium;

fifth software for determining an excess premium based on the loss limit acceptable to the organization, the regular premium and the SIR of the organization;

sixth software to receive a revenue weighting factor from the user;

seventh software to multiply an actual revenue of the organization by the revenue weighting factor to get a weighted revenue of the organization; and

eighth software to determine the standard premium by using the equation:

$$\text{std\_prem} = a1 * \sqrt{\text{weighted\_revenue}}$$

where std_prem is the standard premium,

a1 is a first constant representing a limit to premium multiplier, and

weighted_revenue is the weighted revenue of the organization,

wherein the first, second, third, fourth, fifth, sixth, seventh and eighth software are recorded on the computer readable medium.

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